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Conservation and sustainable management of tropical moist forest
ecosystems in Central Africa

*Case study of exemplary forest management in
Central Africa:*

*Community forest management at the Kilum-Ijim
mountain forest region
Cameroon*

By

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ABBREVIATIONS

ATO	African Timber Organization
CAMCOF	Cameroon Mountains Conservation Foundation
CFM	Community forest management
CFS	Community Forest Survey
CIG	Common Initiative Group
DFID	British Department For International Development
DO	Divisional Officer
FAO	Food and Agriculture Organization of the United Nations
FMI	Forest Management Institution
GPS	Global Positioning System
IFIA	Interafrican Forest Industries Association
IITO	International Tropical Timber Organization
IMFNS	International Model Forest Network Secretariat
IUCN	World Conservation Union
KIFP	Kilum-Ijim forest management
MINEF	Ministry of the Environment and Forestry
NGO	Non-governmental organization
PRA	Participatory Rural Appraisal
SMP	Simple Management Plan
TOU	Technical Operational Unit
WWF	World Wide Fund for Nature

1. INTRODUCTION

1.1. Location of the Kilum-Ijim forest

The Kilum Mountain Range and the Ijim Ridge are in the part of the Western Highlands of Cameroon commonly referred to as the Bamenda Highlands. The Kilum Range (also known as Mount Oku) is situated in Bui Administrative Division in the North West Province. The Ijim Ridge stretches northwest from Mount Oku, starting from the west side of Lake Oku to Kom in Boyo Division. The contiguous Kilum and Ijim Mountain Forests (now known as the Kilum-Ijim Forest) are located between latitude 6°07'N and 6°17'N and Longitude 10°20'E and 10°35'E.

1.2. Political and institutional environment

Throughout much of the tropics, colonialism has contributed to a legacy of centralized authority over management of natural resources. In many regions, this has been entrenched by African traditions of governance (Thomas, Gardner and DeMarco, 2001). This has been very true in Cameroon, as this legacy has prevailed from independence until recently when the need for greater involvement of local people in forest management has been increasingly recognized over the past decade.

Government, through the Ministry in charge of forests, has largely administered forests in Cameroon. Until 1992, this Ministry was the Ministry of Agriculture through its department of Forestry. In December 1992, the Ministry of the Environment and Forestry (MINEF) was created. A Minister, who is assisted at the central level by directors of various technical departments, heads this Ministry. Each of the ten provinces has a provincial Delegate who is equally assisted by provincial heads of the various technical departments. This structure is replicated at the divisional level where a Divisional Delegate is head. At the sub-divisional level and special units, Chiefs of Forestry and Wildlife Posts and Chiefs of Environment posts are located. This bureaucratic structure regulates access to forests throughout the national territory. In accordance with the law, all natural forests belong to the state and are administered by MINEF. The country is made up of over two hundred ethnic groups, each of which has a traditional ruler. The level of authority exercised by the traditional rulers over their subjects and over natural resources as well as social organization differs for each ethnic group. Even though the law states that all natural forests belong to the state, traditional authorities and local communities have exercised *de facto* ownership of these resources in most areas.

Since independence, the Government has applied conventional protection measures by creating a network of Forest Reserves (and other forms of protected areas) to add to those already created by colonial authorities. Over the past decade, there has been growing interest within the country for community participation in natural resource management. It has generally been recognized that more conventional protection measures such as creating forest reserves and policing have had little success and that one factor in this failure may have been the lack of community involvement (Asanga, 2001). There is now the existence of enabling policy in Cameroon through the new forestry law that allows for devolution of management authority from central government to local communities.

In accordance with the new legislation, a community forest is a forest, which is covered by a management agreement between a village community and the Forestry Administration. Management of such forests is the responsibility of the village community concerned, with technical assistance provided by the Forestry Administration (Article 3 [16] of the Decree of Application, 1995). Forest Products of all kinds resulting from management of community forests shall belong solely to the village communities concerned (Section 37 [5] of the Law, 1994). Many bilateral organizations, international NGOs (Non-governmental organizations) and local NGOs have taken advantage of the new enabling policy and are working at various levels with government, local communities and other partners to promote partnerships in the collaborative management of natural resources. The Kilum-Ijim area presented a promising test case, with communities already using indigenous practices to manage the forest (Nurse *et al.*, 1994).

1.3. Socio-economic environment of the Kilum-Ijim area

The societies around the Kilum-Ijim forest, like those elsewhere in the North West Province of Cameroon, still operate on the basis of a traditional centralized political system (Thomas *et al.*, 2001). The Fon (a hereditary traditional ruler of an ethnic group or a fondom) and Kwifon (the Fon's Council of Elders or regulatory council) head the fondom. Each ethnic group is made up of villages or quarters that are managed by village heads or quarter heads and village councils. These all report to the Fon and Kwifon. Most of the village Heads are members of the Kwifon. All immigrants to a specific area equally respect the authority of the Fon and Kwifon. The Fon and Kwifon have traditional custody of the land/natural resources and *de facto* ownership.

Three fondoms cover the Kilum-Ijim Forest: the fondoms of Nso and Oku in Bui Administrative Division (covering the Kilum Forest) and the fondom of Kom in Boyo Administrative Division (covering the Ijim Forest). The main immigrants to the area are Fulani pastoralists. Some are now settled within grassland enclaves within the forest, and have been living there in permanent houses for at least the last 60 years (Thomas *et al.*, 2001).

The area around the Kilum-Ijim Forest is one of the most densely populated parts of Cameroon. It is estimated that close to 300 000 people live within a day's walk of the forest. This population is attracted by rich volcanic soil and the near temperate climate that favor cultivation of crops such as coffee, beans, maize, Irish potatoes and a wide variety of vegetables (onions, tomatoes, cabbages, carrots, etc.). The potatoes and beans are exported to other parts of the country as well as neighboring countries. These crops are gradually replacing coffee as the main cash crop of the area because of the dramatic decline in coffee prices during the mid 1980s. Infrastructure in the area is generally poor. Farm-to-market roads are seasonal and this makes evacuation of farm produce very difficult. A new road was constructed in the early to mid 1990s to serve the communities on the south west side of the forest. In contrast, the north East Side is served by unsurfaced roads that become difficult in the rainy season. The recent advent of mobile telephone networks has greatly improved communications with the outside world from the few areas around the Kilum-Ijim forest where networks exist.

The Kilum-Ijim forest has had a long history of indigenous and traditional management. The population uses the forest heavily for a wide variety of products, the most important being fuelwood, honey, medicine, bushmeat and building materials. Most watercourses in the project area originate from the forest and the forest is widely recognized as having an important role as a water source. In addition, the forest has significant cultural and spiritual values to the local population. Under these circumstances, forest adjacent communities in forest user groups have a strong incentive to manage the forest for various benefits. As already stated, the new forestry policy requires the negotiation of a written forest management plan with the responsible community based institution. Community forest management in the Kilum-Ijim area has been enabled through the support of an institutional three-way partnership among traditional authorities (represented by the Fon, Kwifon and village heads), local communities (represented by user groups) and the Government (through MINEF). Traditional authorities would have the role of coordinating the activities of the user groups and of resolving conflicts between user groups or members of the same user group (Asanga, 2001). The Government also plays this coordination and conflict resolution role as well as the other key role of creating the enabling policy environment for community forestry through legislation and technical assistance. The Kilum-Ijim Forest Project plays the role of a facilitator or catalyst.

1.4. Biodiversity importance of the Kilum-Ijim forests

The forests of the Bamenda Highlands region have experienced unprecedented degradation in recent decades and the Kilum-Ijim Forest is, at 20 000 hectares, the most significant remnant of Afro-montane forest in Central Africa. The forest on Mount Kilum at 3 011 meters (the second highest peak in mainland West Africa) and the adjoining Ijim Ridge (2 000-2 500 m) are recognized as a globally important center of endemism and a hotspot for biodiversity conservation.

1.4.1. Vegetation

The vegetation of the Kilum-Ijim forest has been described by several authors, but the most detailed data published so far are the following: Cheek *et al.* (1997, 1998, 2000), ENGREF (1987), McKay (1995), McKay and Coulthard (1996), McKay and Young (1995), Letouzey (1985), Tame and Asonganyi (1995), Thomas (1986, 1987, 1989), Maisels and Forboseh (1997), Forboseh and Maisels (2000), who recognized 11 main vegetation types within the forest.

In brief, the natural vegetation at the highest altitudes of Mount Kilum (2 800-3 011 m) supports *Podocarpus latifolius/Prunus africana/Rapanea melanophloeos* forests on deep soils (vegetation type 1) and mostly carpets of *Alchemilla fisheri* ssp. *cameroonensis* within the afro-subalpine prairies on thinner soils. A community of rare endemics grows in waterlogged areas, often an association of two or more *Kniphofia reflexa*, *Succisa trichotocephala*, *Juncus* sp. *nov* and *Eriocaulon* sp. *nov*. These high altitude communities have been badly damaged and some of the forest has been cleared or burned. In these areas, *Adenocarpus mannii*, *Hypericum revolutum* and, near the forest edge, *Gnidia glauca* are the main ligneous species (vegetation type 9) which are the first stages in the succession back to montane forest. Where no trees are left, *Pennisetum clandestinum* dominates.

Lower down, from about 2 200-2 800 meters, the natural vegetation is montane forest. This can be subdivided into fairly open forest above 2 400-2 500 meters, where *Carapa grandiflora* is relatively rare and where a major understorey shrub is *Pavetta* sp. (vegetation type 2). Below 2 500 meters, *Carapa* is fairly common but *Pavetta* sp. is absent and the herb layer is often dominated by monocarpic Acanthaceae and Labiatae (Thomas, 1989) (vegetation type 3). Above 2 400 meters to about 2 700 meters, dense monospecific alpine bamboo *Arundinaria alpina* thickets occur (vegetation type 5). This bamboo also occurs in association with mixed montane forest, forming a distinct vegetation type (vegetation type 10). In particular, the *Podocarpus latifolius*- *Arundinaria alpina* are unique in all of Central Africa.

Again, areas where this montane forest has been damaged in the past (often by fire) support other vegetation types. Two forest types are the last stages in the succession back to mature forest: one is *Gnidia/ Maesa lanceolata* woodland (vegetation type 4) and the other is woodland dominated by *Erica mannii* and *Gnidia glauca* (vegetation type 6). This stage is preceded by open woodland that is dominated by *Gnidia glauca* with an herb layer of bracken *Pteridium aquilinum* and grasses (vegetation type 11).

On the north western side of the forest, yet another distinct vegetation type is found between 1 600 and 2 000 meters. The forest is at the base of a cliff, which is made of horizontal hexagonal pillars of basalt. The vegetation canopy is dominated by *Symphonia globulifera*, *Strombosia scheffleri*, *Piptadeniastrum africanum*, *Tabernaemontana* sp., *Zanthoxylum rubescens* and *Garcinia* sp. The understorey shrubs include *Rytigynia cf. neglecta*, *Psychotria peduncularis*, *Ardisia cymosa*, *Chassalia* sp. nov and the rare *Oxyanthus* sp. nov. Lianae not known elsewhere in the forest include *Agelea* sp., *Cyphostemma* sp. and *Urera camerunensis*. Other rare trees and shrubs include *Olea hochstetteri*, *Mystroxydon aethiopicum*, *Entandrophragma angolense*, Cappardaceous shrubs and *Campylospermum* sp. The cliff proper hosts a dry community that is fed by dripping water and a wet community. The dry community supports *Umbilicus botryoides*, *Crassula schumperi* and *Gladiolus* sp. The wet community grows on a dense blanket of moss and consists mostly of *Utricularia mannii*, several ferns and *Impatiens* spp. The herbs at the foot of the cliff include *Geranium mascatense* and an unusual *Swertia* sp.

Finally, there are large areas of degraded grassland (vegetation type 7) between 1 800 meters and 2 800 meters which are dominated by *Sporobolus africanus*, *Pennisetum clandestinum* and, at the very lowest altitudes, *Hyparrhenia* spp. These areas are regularly burned by graziers to prevent the scrub- woodland- montane forest succession. However, within these grasslands, some swampy watercourses support the same rare plant community that is found above 2 800 meters (the *Kniphofia- Succisa- Juncus* association).

1.4.2. Fauna

Kilum-Ijim forest in the Bamenda Highlands is an excellent example of the high level of endemism to be found amongst the flora and fauna of this biome. It supports many endemic birds and plants and some other taxa such as amphibians, small mammals and reptiles (Cheek *et al.*, 1998; Chirio, 1997; Hutterer and Fulling, 1994; Macleod, 1987; Stuart, 1986; Wild, 1994).

Arguably, indiscriminate hunting over the last 200 years has played a major role in the loss of Kilum-Ijim mega fauna, including species such as Leopards (*Panthera pardus*), elephants, buffaloes and antelopes. Indeed, the culture and tradition of the forest-adjacent Oku, Nso and Kom peoples encourages hunting these large mammals, notably the Leopard and Colobus Monkeys (*Colobus* sp.). The largest mammal in the present-day forest is the Olive Baboon (*Papio anubis*). Other large mammals include the Preuss's Guenon (*Cercopithecus preussi*), Green Monkey (*C. aethiops tantalus*), African Civet (*Viverra civetta*), Serval (*Felis serval*) and Duikers (*Cephalophus* sp.). However, remaining large mammal populations are severely depressed and close to regional extinction, yet the long-term effects of any extinction on ecosystem stability and forest regeneration are still uncertain. The forest supports many small mammal species, amongst which are six strict endemics, namely *Chrysochloris balsai*, a Golden Mole, *Grammomys nov. sp.*, Woodland Mice, *Hylomyscus grandis*, African wood lice, *Lamottemys okuensis*, Mount Oku Mouse, *Lemniscomys mittendorfi*, Zebra mice and *Lophuromys nov. sp.* (no English name).

Despite the loss of large mammal populations, the forest remains an excellent example of the ornithological riches of the Cameroon montane forest biome. Six bird species of the Kilum-Ijim forest are in the IBA category A1 (species of conservation concern). These six, plus a further eight species, are in IBA category A2 (species of restricted range, *i.e.*, with world distributions of less than 50 000 km²). The IBA category A3 (biome restricted assemblage) of the Afrotropical Highlands (Fishpool, 1997) lists 43 birds for Cameroon, of which 31 species have been recorded in the Kilum-Ijim forests. Two of the 31 species are endemic to the Bamenda Highlands: *Tauraco bannermani* (Bannerman's Turaco) and *Platysteira laticincta* (Banded Wattle-eye), for which the Kilum-Ijim forest is arguably the last stronghold (Collar *et al.*, 1994; Forboseh and Ikfuingei, 2001). Finally, Lake Oku qualifies for special mention for the IBA category A4 (congregations) for little Grebe (*Tachybaptis ruficollis*), as the 1 percent threshold for this species in Africa is 500 individuals (Fishpool, 1997). Several hundred individuals are regularly seen on the lake and their numbers increase during the dry season.

The forest also supports endemics in other faunal taxa, including two amphibians (*Xenopus* sp., Oku Clawed toad and possibly *Crotaphatrema lamottei*, Lamottes' Caecelian).

1.5. Background to the Kilum-Ijim forest project

1.5.1. History

Attempts to conserve this forest began in 1931 when the conservator of forests for Bamenda Division drew limits for the proposed Oku Mountain Forest Reserve, known then as the "Bush of Hill Forest Type". When notice of the proposed reserve was published, the people adjacent to it objected very strongly. An agreement was then reached between the conservator and the local population with the later given certain use rights in the proposed reserve. Subsequent efforts by Government to gazette the proposed reserve failed in 1938, 1961 and 1963. Finally, in 1975, the conservator was successful in demarcating part of the forest although the boundary was not universally respected forest. By 1986, the forest had been reduced to 50 percent of its 1963 size.

A survey of the western mountain chain of Cameroon by the International Council for Bird Preservation (now BirdLife International) in the early 1980s led to the establishment of an Integrated Conservation and Development Project in the Kilum-Ijim area in 1987. Thus, the Kilum - Ijim Forest Project is a project for the conservation of the biodiversity of the Kilum-Ijim Mountain region. It is jointly funded by the Government of Cameroon, through MINEF, and a number of international funding agencies through BirdLife International, an international partnership of conservation organisations. The project for the conservation of biodiversity of the Kilum area in Bui Division (Kilum Mountain Forest Project) was established in 1987. In 1992, Ijim Mountain Forest project was also established for the conservation of biodiversity in the area. Both projects began working together as the Kilum-Ijim Forest Project in 1995. Today, the project is fully integrated under a single management structure.

Learning from government's past attempts to demarcate the forest, the project worked in collaboration with communities adjacent to the forest to negotiate boundaries beyond which no further clearing for farming could take place. This work was carried out by commissions consisting of representatives of the community, traditional authorities and administrative authorities and was completed in 1994. This demarcation has been largely respected and has halted the rapid destruction of the forest. Without this action the forest would have almost completely disappeared by now.

1.5.2. Management objectives

Because of the important role of the Kilum-Ijim Forest in local economy and culture, forest conservation, to be successful, must involve local people and address their needs. Recognising this, MINEF and the project agreed to shelf the original plans to gazette the whole forest and work towards the establishment of community forests covering most of the Kilum-Ijim Forest, with a core gazetted conservation area at the center of the forest (Plant life Sanctuary). This was made possible by the new Forestry law of 1994, which allowed for the establishment of legally recognized community forests, in which management of a forest can be devolved to the communities bordering the forest, on the basis of an agreed forest management plan. Thus, since 1994, the project has been working with communities surrounding the forest for the establishment of legally recognized community forests that will cover most of the Kilum-Ijim Forest. During the previous phase of the project, which ran from July 1995 to June 2000, project efforts were focused on assisting Forest Management Institutions established by the forest-adjacent communities to go through the legal steps needed for the legal attribution of their community forests. A crucial part of the process involved negotiation of forest use limits based on MINEF conservation objectives for the forest and local use objectives by the communities around the forest. On this basis, the project facilitated a meeting bringing together Divisional MINEF staff, traditional authorities and community representatives from all three fondoms in which forest-wide rules were agreed. All simple management plans for the individual community forests would take into consideration these rules. Currently, the project is in its final (winding down) phase, which is expected to end in June 2004.

In this final 4-year plan, the project aims to:

- Complete the creation of community forests covering most of the Kilum-Ijim forest, and provide support to the forest management institutions during the first few years.
- Set up a permanent MINEF structure (a Technical Operational Unit) specially for the Kilum-Ijim mountain region, to manage the proposed core conservation area as well as to support and monitor the management of the forest by the communities.
- Set up a permanent trust fund to finance and manage the ongoing ecological monitoring programme and other strategic activities, which are crucial to the conservation of the forest.

Presently, the community forest management process is progressing steadily, with eight Forest Management Institutions (out of 18 FMI's applying for community forests in the Kilum-Ijim area) already acquiring their community forests through the signing of management agreements with the state. The rest of the communities are at different levels of advancement in the process of legal acquisition of community forests and it is expected that all management agreements for their community forests will have been signed by June 2003.

In an earlier case study on community forest management at Kilum-Ijim (Asanga, 2001), I presented lessons learned thus far about multiple stakeholder management and project learning. At that time we were still at the early stages of the negotiation phase. The process of setting up a management system for the whole of the Kilum-Ijim Forest is now near completion and new partnerships have also been established. In this paper, I present the lessons learned from practical experience with participatory planning and management of forests with local communities and the establishment of successful partnerships for the management of the Kilum-Ijim Forest to meet both biodiversity conservation objectives and use objectives. These lessons enable us to draw conclusions about new participatory planning and management approaches that may be useful elsewhere in Cameroon and throughout the world.

2. KILUM-IJIM FOREST MANAGEMENT

There are two important elements in the community forest management process at Kilum-Ijim:

- the building of forest management institutions in forest adjacent communities;
- the support and strengthening of the capacities of these institutions to manage the forest for conservation and sustainable use.

This has been done through the facilitation of successful partnerships between the various stakeholders. Since its creation in 1987, the Kilum-Ijim forest project facilitated community participation in forest conservation through a series of consultative meetings and informal dialogues. By 1994, it initiated work with the communities around the forest to develop community forest management. At Kilum-Ijim, four phases were identified as important in the process of setting up community forest management: investigation, negotiation, implementation and monitoring/review. A framework was developed for each phase by project staff, then tested and implemented. The annex 1 shows how project staff followed the progress of each FMI through the various stages in the process of the legal attribution of community forests.

2.1. Interim management arrangements

The first project framework was drawn up in 1995 with a view to facilitating community forest management process as required by the new forestry law. However, it was recognized that the process was going to be very long and complex, so interim management arrangements were built into the plan to ensure that forest boundaries and established conservation regulations were respected during the transition to community forest management. In practice, the four stages mentioned above have overlapped with each other as well as with action begun before community forestry legislation was enacted. Bans on fire, farming, grazing and other destructive activities within the forest were agreed by communities and also imposed by government orders before 1994. These actions provided some interim control before communities could take formal legal control of the forest as community forest (Asanga, 2001). As the communities were progressing towards legal acquisition of community forests they were taking increasing responsibility for forest management with the support of local MINEF officials. This includes fire prevention and fire fighting, enrichment planting and the planting of forest boundary markers. The forest management institutions and traditional authorities have been handling most minor forest offences. Thus, there has been an interim management system prior to legal attribution of community forests.

2.2. Investigation phase

This was the very first phase since the beginning of the community forestry process in 1994. A total of 40 forest-adjacent village communities were involved. A number of Participatory Rural Appraisal (PRA) tools were used in the village communities. Rapport was built with the villagers and information was gathered on the existing use patterns and rules of access and use rights, as well as the needs and problems of interest groups using the forest (Asanga, 2001). At this stage, in Kilum, the forest user group was identified as the locally appropriate institution while that for Ijim was the forest management committee.

It is worth explaining the dichotomy between the Kilum and the Ijim areas. In the Kilum area, *i.e.* Nso and Oku, the people historically had a closer relationship with the forest than at Ijim, using the forest for such purposes as beekeeping, rat trapping, cutting of carving wood, collecting firewood and collecting medicinal plants, so user groups were easily identified. On the Ijim site, *i.e.* Kom, such indigenous practices were not common, so when they embraced community forest management, they had to form forest management committees consisting of members from all sectors of the community. Information and sensitization of the communities about the opportunities offered by the government for community forestry were delivered on the Kilum site during the investigation phase as the indigenous forest managers (user groups) were easily identified, but at Ijim a separate information/sensitization phase had to be built into the process and carried out before the investigation phase.

2.3. Negotiation phase

As already stated, the new forestry legislation requires the negotiation of a written forest management plan with the responsible community-based institution. The management plan takes into consideration the indigenous management system and aims at meeting both conservation and use objectives. In order to arrive at such a management plan, it is necessary for both these objectives to be clearly defined.

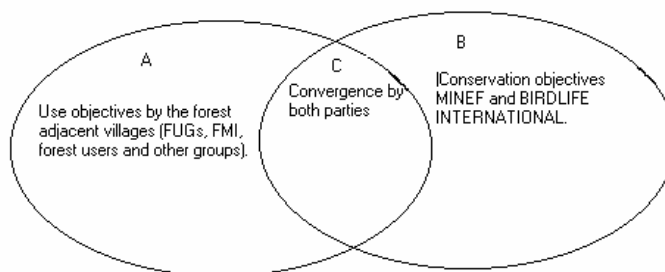
The conservation objectives document for the Kilum-Ijim forest was finalized in May 1998. The document serves as a set of guidelines, outlining the desired states of habitats and species in the forest as defined by extent, quality and number (Maisels *et al.*, 1998). The broad conservation goals are as follows:

- the extent and quality of the montane habitats, for which Kilum-Ijim forest is of outstanding conservation interest, is improved or maintained;
- the key species important for ecological processes within each habitat, such as forest regeneration and food webs, are maintained;
- the populations of the rare species of Kilum-Ijim forest are maintained, and, if appropriate, increased to carrying capacity, where known.

2.3.1. *Convergence of interests*

The foundation on which the work of the project is based is a convergence of interests between the International Conservation Community (as represented by BirdLife International, for example) and the local population. On the side of the International Conservation Community, the interest is in ensuring the continued survival of the many rare and endemic species found in this unique forest. For the local population, there is a multiplicity of interests ranging, as described from ensuring a water supply for the community to the use of various forest products to cultural concerns. These interests are different, but there is a significant overlap between them in that the conservation community and a majority of the local population favor maintaining the forest at its present extent and in a natural state. It is this convergence of interests, as demonstrated in the diagram below, that enables the project, MINEF, traditional authorities and the communities to work together in a truly collaborative way for the common goal of forest conservation.

Convergence of various interests in forest conservation



The negotiation phase was carried out in accordance with the negotiation phase trial framework that was developed by the project early in 1998 (annex 2) in line with the new forestry law (1994), its decree of implementation (1995) and the MINEF manual of procedures for community forest management (1998). The key elements of the negotiation phase were the creation of legal entities for forest management, agreement and marking of external community forest boundaries, agreement of common rules for forest management, holding of consultation meetings, submission of application dossiers to MINEF, conduction of forest inventories and the drawing up of simple forest management plans.

2.3.2. Creation of legal entities for forest management

Article 28 (3) of the decree of implementation of forestry regulations (1995) states that any community wishing to manage a community forest must have the status of a corporate body, in the form of an entity provided for by the laws in force. Thus the government requires legally established Forest Management Institutions (FMIs) to manage community forests. Different types of legal entities exist in Cameroon but following advice from the community forestry unit of MINEF, the project advised communities to form Common Initiative Groups (CIGs). A CIG can be formed by one or more communities. Thus the communities formed FMIs, each of which represents between one and five forest-adjacent communities, the number depending upon the particular situation of each community and its relationship with its neighbors. The project organized workshops on CIG establishment at the level of FMIs. The FMIs elected strong executive members who now carried out CIG campaigns and registration of members. The necessary steps were followed as per negotiation framework (annex 2) and this culminated in the acquisition of CIG certificates by all the FMIs in accordance with the law on CIGs (1992). The main components of the management system are therefore the 18 community-based FMIs that each manage a different section of the Kilum-Ijim forest. See the annex 1 for details of these institutions and their level of advancement in the process of legally acquiring and managing community forests. The FMIs have strong ties with the traditional authorities, both at the village and regional levels. While they are not traditional institutions, they have been developed to fit within the traditional structures and depend on the traditional authorities for their authority and legitimacy.

2.3.3. Marking of community forest boundaries

The law (1994) stipulates that neighboring communities must agree to the proposed boundaries of the community forest and that a plan showing the location of the forest concerned must be included in the application dossier. This plan shall indicate the location and boundaries of the said forest on a map of scale 1: 200 000 (Procedures Manual 1998). The negotiation, agreement, marking and mapping of the boundaries of a community forest constitute arguably the most crucial stage in the process of acquiring a community forest. If boundaries are not agreed and marked the whole process can not proceed. This stage was carried out as per cluster B of our negotiation framework (annex 2). Boundaries were completed after numerous exchange visits. The Divisional Delegate was present during all the boundary marking exercises. In each instance, he placed paint marks on points agreed on by the two communities. The process was quite easy between some communities and extremely difficult in others, depending on the history of relationships between these communities. In some instances, where neighboring communities totally failed to agree on their forest boundaries, the MINEF Delegate resolved the conflict by taking a unilateral decision on where the boundary would pass e.g. Kedzem-Mawes/Ijim.

In other instances, where the boundary dispute holds wider territorial implications, MINEF carved out core conservation areas separating the disputing communities e.g. Ijim/Mbessa. During the marking exercise GPS (Global Positioning System) readings were being taken by trained members of the communities, with the guidance of the project and MINEF. These readings were eventually used for producing the maps.

2.3.4. Common rules for forest management

A landmark achievement in the negotiation phase was the adoption in June 1998 of common rules for forest use by representatives of the three fondoms (Oku, Kom and Nso) in the project area. The process started with the development of project proposals for common use rules that the project staff judged necessary to ensure that the conservation objectives for the forest would be met. Then, project staff proceeded to organize and facilitate separate fondom level meetings that culminated in a meeting bringing together all three fondoms. In each fondom, a meeting was held with representatives of all forest management institutions, representatives of the traditional authorities and MINEF staff to develop forest use rules for that fondom. The project proposal was not presented at these meetings, but was used by staff only as a reference to ensure that no important aspects were left out of the discussions. Typically, the rules developed in these meetings were similar to or stronger than those developed by project staff. At the fondom meetings, representatives were elected to attend a three-fondom meeting at which agreement would be sought on a set of rules to be applied throughout the forest. This two-day meeting was an unqualified success. For the first time ever, representatives of the three fondoms met together to discuss how to look after the forest. Consensus was reached on a set of rules which were endorsed by MINEF and the traditional authorities (annex 3). These rules were signed by the two MINEF Delegates of Bui and Boyo, the Fons of Oku, Kom and Nso, and rapporteurs appointed in the meeting. These rules are now being used as the basis of each community's forest management plan, on which rules and actions particular for each locality can be built. Individual management plans may be stricter than the forest-wide rules but cannot go against them.

2.3.5. Fulani enclaves

The issue of Fulani graziers living within the Ijim forest boundary was resolved with the negotiation and demarcation of enclaves within the forest. The Fulani have been living within the forest for generations. Rather than force families from their homes, it was agreed to demarcate areas within the forest that the Fulani could use for their homes and for grazing their cattle. The Senior Divisional Officer for Boyo appointed a commission, which carried out this task. This was followed by the production of a Prefectoral Order restricting the Fulani and their grazing activities within the enclaves. This was a very important step in the community forest management process as the interests of the Fulani were clearly taken into consideration and forest boundaries were well defined.

2.3.6. The application process

The initial step required by the legal texts in the application for a community forest is that: any community wishing to manage a community forest must hold a consultation meeting with all the sections of the community concerned in order to appoint a management officer and to lay down the objectives and boundaries of the said forest. That meeting shall be supervised by the local administrative authority, assisted by the local technical officers concerned (Article 28(1), Decree of Application, 1995). At Kilum-Ijim, all consultation meetings have been supervised by the Divisional Officer (DO) of the sub-Division concerned. It is after the consultation meeting that the application dossier is compiled and forwarded to MINEF. The composition of the dossier is specified in the law. All 18 FMIs in the Kilum-Ijim area have gone through this stage of holding a consultation meeting. Beyond this stage, the different FMIs are at different stages in the process. All but one have compiled and forwarded their application dossiers (annex 1).

2.3.7. Inventories

All of the management plans are based on a qualitative inventory of the forest. In cases where commercial harvesting of a particular species is planned (notably the bark of *Prunus africana*), a quantitative inventory is written into the management plan.

A qualitative forest inventory is carried out through a Community Forest Survey (CFS) as prescribed by the procedures manual (1998). It states: A CFS is a field survey of the community forest area which is intended to establish (i) the external and internal boundaries of the forest and (ii) to provide a qualitative baseline of data on trees and other plants, wildlife resources and topography. The collection of data must be relevant to the priority use(s) of the forest. The outputs of the CFS are:

1. external and internal boundaries fixed on the ground;
2. the production of a map of the community forest depicting external boundaries, internal boundaries and any major feature;
3. a compartment description for any compartment or management unit of the forest.

The manual further states that the fieldwork of the CFS will focus on four operations:

1. to locate and permanently fix the external boundaries of the community forest;
2. to locate and permanently fix the internal boundaries of the community forest;
3. to identify and locate relevant trees/plants growing in the community forest and, if appropriate, to record the animal resources found in the area;
4. to locate and record the topographical features of the area.

In practice, at the Kilum-Ijim area, the above operations are carried out by working with the communities in two stages: (i) preparation and (ii) inventory proper.

(i) Preparation

During the preparatory phase, the project technicians hold a meeting to plan and discuss the various requirements and materials amongst themselves and, later, with the community members. During the meeting with the community members a participatory mapping exercise is used in order to carve out the community forest into compartments and each compartment is given a name. A field visit is then carried out to actually agree on the compartment boundaries and on the spot corrections are made. The compartments are then marked by allocation of paint on their boundaries and named. GPS points are taken along compartment boundaries that would help in drawing a comprehensive map of the community forest.

(ii) Inventory proper

Firstly, The project technicians discuss the objective of the exercise with the community members. During the exercise note is taken of features such as the aspect, topography of terrain and vegetation and recorded by the project technician with the consent of community members. Community members are usually divided into groups each with a project technician. Compartment by compartment, the resources (plants and animals) features/relief, are recorded and described (see annex 4 for the compartment description form of the Bihkov community forest). Local names (usually given by community members), common names and scientific names of flora and fauna are recorded as the data is being collected. When the field exercise is complete, the technicians compile the inventory results and make them ready for drawing up the management plan.

The GPS readings are used to produce a map of 1:150 000 to meet legal requirements and a larger scale map to serve the community in drawing up their management plan.

2.3.8. The management plan

In this section, I draw examples from the Bihkov management plan. This was one of the first community forest management plans in the Kilum-Ijim area to be approved by MINEF. Annex 4 is an extract of relevant sections of that management plan.

The preparation of the simple management plan at Kilum-Ijim is done at two levels as per cluster D (5) and (6) of the negotiation framework (annex 2). At the level of the whole forest, the work was carried out as already described above by developing common forest-wide rules for forest management (annex 3).

At the community forest level, while closely referring to the negotiation framework, the drawing up of a simple management plan has usually been done in two phases: (i) the preparatory phase and (ii) the planning proper. The preparatory phase consists of a mock management planning whereby sketches of model simple management plans are made and discussed with community members. The FMI members are then tested on the subject matter to prepare them for the main exercise.

On the occasion of actually drawing up the simple management plan, the exercise is facilitated by technicians with the full participation of community members. A full discussion is opened up on the results of the inventory that had been carried out. The compartment map and compartment description are presented to the group (annexes 4). For each compartment a list of uses is drawn up with the community based on the resources found in the compartment and the history of use of that compartment. (annex 4). The particular problem faced by the community in managing each compartment is also discussed. All of these lead to the development of clear management objectives for each compartment. Then, compartment by compartment, a five-year action plan is discussed and recorded and from the five-year plan of action, an annual plan of operations is discussed and drawn up with details of activities to be carried out, location, persons responsible and time frame (annex 4). Care is taken that the plan meets both use and conservation objectives. Following the forest-wide rules, each community forest has at least one compartment in which all exploitation, except beekeeping, is forbidden. During the management planning exercise, the community and technicians discuss and agree on this special compartment. Persons responsible for activities in each compartment are identified and appointed by the FMI based on how frequently they visit and use that particular compartment.

Section 4.1.1 of the procedures manual states that the Forest Management Plan shall contain the following chapters:

- Chapter I. The community
- Chapter II. Location of the community forest and priority use
- Chapter III. Description of the community forest
- Chapter IV. Action programme
- Chapter V. Undertakings and signatures

Thus, after going through the process with the community as described, the technicians work with the management officer to compile the management plan in accordance with the prescriptions of the procedures manual given above. The management plan is brought back to the general membership for adoption. The undertakings and signatures constitute an official statement from the management officer and the local forestry administration.

The management agreement is drafted and attached to the management plan for eventual signature when the management plan is duly approved.

2.4. Implementation phase

Presently, eight community forests out of eighteen forest management institutions applying for community forests are legally attributed. The rest are at different levels in the process and are expected to be completed by 2003. As already explained, even where formal management plans have not yet been completed, communities have been carrying out essential management practices. Thus, implementation activities described here essentially refer to the implementation of the legally approved simple management plans even though those communities whose forests have not yet been legally attributed are informally carrying out some of these activities in their forests. Project staff have developed a strategy for assisting the communities in implementing their management plans.

As in every classical forest management plan, implementation activities consist of (i) regeneration, (ii), protection and (iii) harvesting.

2.4.1. Regeneration

As the Kilum-Ijim forest is a natural forest, regeneration activities are not widespread. The main regeneration activity is enrichment planting of seedlings in certain degraded areas of the forest. The FMIs raise tree nurseries for this purpose and for planting along their external forest boundaries.

2.4.2. Protection

As noted above, protection of the forest is the main focus of most of the community forest management plans. Thus, most of the FMIs regularly carry out the following activities:

- Planting and maintenance of trees, cairns and signs marking the external boundary of the forest. This includes planting signs and barbed wire along the boundaries of the Fulani enclaves.
- Regular patrols to check for encroachment into the forest or for illegal activities in the forest. In the dry season, when fire is a major threat, patrols may be undertaken daily. Fire fighting is carried out when fires occur.
- Sanctioning of those breaking forest use rules.
- Fire-tracing and possibly back burning.
- Education campaigns among those farming near the forest boundary in order to prevent fire from entering the forest.
- Removal of exotic trees (e.g. *Eucalyptus* spp.) from the forest.

2.4.3. Harvesting

All the activities summarized above are being carried out by the communities in order to ensure the continued supply of goods and services that the forest renders. These as stated above are water, wood and non-wood products and other environmental services. Except for water and *Prunus africana*, which are regarded as resources belonging to the whole community, most forest resources are harvested on an individual basis, according to rules established in the forest management plans. The most common resources to be harvested from the forest are:

- fuelwood;
- medicines;
- honey (from constructed hives only; harvesting of wild honey from trees is not permitted. Only a type of wild honey found in the ground can be dug);
- building materials, including both timber and alpine bamboo;
- poles for fencing;
- wood for carving and for making musical instruments;
- branches to make hoe handles;
- wild fruits and vegetables;
- bush meat, mainly rats;
- mushrooms.

Depending on the circumstances of each community forest, other activities that may be undertaken include:

- inventory of *Prunus africana*;
- workshops on beekeeping;
- monitoring the health of the forest.

Products harvested from the forest may be for subsistence or for the market.

2.5. Review/Monitoring phase

In the course of implementing their community forest management plans, the communities need to review progress periodically. Article 30 (3) of the Decree of implementation (1995) requires that a community forest management plan be reviewed at least every five years. The procedures manual further elaborates that this review shall be undertaken as follows: four months before the expiry of a period of five years, and earlier if so agreed to by both the community and the Forestry Administration. The Provincial Forestry Administration shall, by official letter, request from the community the following documents, drawn up jointly by the community and the local Forestry Administration Official:

- a five-year action programme and a detailed plan of operations for year one;
- documentary evidence that the community still exists as a legal entity;
- a document detailing the number and types of exploitation titles to which the community forest is subject;
- if necessary, a new map of the area;
- information on any change in the identity of the Management Officer.

At the moment, no FMI at Kilum-Ijim has reached this stage yet. The eight FMIs that are managing legally acquired community forests have only gone through one year of operation and they already produced their annual reports and submitted them to the Divisional Delegate of MINEF.

At Kilum-Ijim, aside from this legal requirement that has to be met, two monitoring approaches have been developed and are being implemented. First, the projects ecological monitoring programme has been monitoring the forest according to standard agreed scientific methodologies and systematically communicating the results to relevant actors according to their needs. For community Forest Management, an annual ecological monitoring report is produced and presented by project staff separately in meetings for each of the three fondoms (Nso, Oku and Kom). Each meeting brings together representatives of all FMIs and traditional authorities in the fondom. Two of such annual meetings have been held in each fondom for the past two years. The purpose of the meetings is to make the communities fully aware of the state of the forest and to quickly take corrective measures if anything is going wrong.

Secondly, communities should also be able to monitor the condition of their forests, as well as the condition of their FMIs. Methodologies should be simple enough for the communities to understand and apply. In a workshop held in February 1999 with the project and MINEF staff of the Kilum-Ijim area, indicators were produced for monitoring the state of the forest and the state of the forest management institution. In later workshops that included representatives of traditional authorities and FMIs, the practical applications of these indicators and methods of measuring them were discussed. These methodologies were later tested in selected communities who had acquired their community forests. An Institutional Monitoring Guide for Kilum-Ijim has been recently published (Mbinglo and Gardner, 2002) with an accompanying workbook. The key elements of the guide are:

- explanations on how to use the guide;
- introduction on the concept of institutional advisers and how to select them;
- definition of indicators and a set of 15 indicators for institutional health and methods of measuring them.

Presently, work is underway to complete the Forest Condition Monitoring Guide based on the project proposal for forest health indicators and methods of measuring them (annex 5).

3. CREATING AND MAINTAINING SUCCESSFUL PARTNERSHIPS

As described above, the main managers of the forest are the 18 community-based FMIs. These are organizations made up of members of each community. The executive is elected by the community and is generally selected to be representative of the different groups in the community (e.g. youth, women, different ethnic groups). The FMIs were developed over time through a participatory process that ensured that they were responsible and representative from the start. The role of the traditional authorities and their relationship with the FMIs as well as their role in forest management have been described. MINEF (currently through the line services described above) support the FMIs in their management function. The project has been taking iterative action by facilitating discussions and joint action among these actors and acting as a focal point. Through these joint actions trust has been built and successful partnerships have been maintained among them.

During this final phase of the project, senior project staff and BirdLife International are working with MINEF to establish a permanent MINEF structure especially for the Kilum-Ijim Mountain Region in the form of a Technical Operational Unit (TOU) as prescribed in the new MINEF organogram. The proposed mandate of the TOU is to:

- manage the core conservation area (plant life sanctuary);
- continue and complete the process of assisting the communities around the forest to acquire community forests (This process is already well advanced, as described, and should be complete by June 2003);
- monitor the implementation of forest management plans by the communities;
- periodically review each management agreement, as provided by the law.

The file of the proposal for the establishment of the TOU has been constituted and received favorably at the ministerial level. A Government Decree to establish the TOU is being awaited.

The ecological monitoring unit provides regular information to the FMIs on the state of the forest and also offers advice on possible solutions to problems that may exist. FMIs can then incorporate this information and advice in revisions to their management plans. This is the main route by which biodiversity conservation concerns are addressed. The ecological monitoring unit has been a project programme but now it is being established as an independent legal entity, which will continue monitoring the forest and providing regular information and advice as described. This unit will be financed by a trust fund to be managed by the Cameroon Mountains Conservation Foundation (CAMCOF).

In 2000, the decision was made to work jointly with the Mount Cameroon Project, Limbe, to establish a trust fund that would initially focus on Mount Cameroon and Kilum-Ijim, but would eventually extend its activities throughout the Cameroon mountain chain. An ad-hoc committee for the establishment of the trust fund was created by the Minister of the Environment and Forestry, with representatives of the projects, MINEF and civil society. This committee continued to work very actively in 2001 with the support of the two projects. In August 2001, the CAMCOF was legally registered under the Law of Associations in Cameroon. One of the KIFP (Kilum-Ijim Forest Project) technical advisors was a founding board member, as a representative of an international conservation NGO (BirdLife International). The new board immediately became active and continued work on defining more precisely the work to be done by CAMCOF and seeking funds for CAMCOF to become operational.

The proposed mandate of CAMCOF was discussed with project staff as well as with community representatives at Kilum-Ijim. The British Department For International Development (DFID) has expressed its willingness to fund CAMCOF for an initial 2-year period. Thus, CAMCOF is at the establishment phase and it is envisaged that it will eventually manage an off shore trust fund which will be capitalized by a number of funding agencies. The ecological monitoring unit and the FMIs at Kilum-Ijim, as well as communities around Mount Cameroon and eventually elsewhere around the Cameroon mountain chain, will compete for funds from CAMCOF for conservation activities. CAMCOF will disburse funds for these activities based on merit.

Thus, it is envisaged that the Kilum-Ijim Forest will be a series of 18 community forests covering most of the forest and a small area surrounding Lake Oku in the centre of the forest, which has been demarcated as a Plant life Sanctuary. This is an official protected area, managed directly by MINEF. The FMIs are the primary managers of the Kilum-Ijim Forest. They will be supported by MINEF through the TOU, the ecological monitoring unit and CAMCOF. These partnerships should be consolidated by June 2003.

4. LESSONS LEARNED

4.1. Characteristics of a simple management plan (SMP) for a community forest

In the course of developing and implementing forest management plans with communities at Kilum-Ijim, several lessons have been learned about the fundamental properties of management plans that enable them to be applicable to the communities. A community Forest management plan should be:

- Useful: a management plan should only contain essential forest management operations that need to be carried out to meet the users' objectives. This means that objectives should be clearly defined in the management plan. No unnecessary activities should be included.
- Simple (easy to understand): a management plan should not contain terms that cannot be understood by the users. It should not contain data (from inventory or forest survey) which is not needed by the user groups to manage their forest.
- Independent (drawn up by users): the primary managers of the forest are the FMIs or users. This means that the plan should not be imposed from outside. The users themselves should produce the plan. Technicians should only act as facilitators.
- Realistic (can be carried out by users): the user group should decide whether it can really carry out an operation before it is included in the management plan. For example, if the forest is very large, an operation such as enrichment planting should be written in a small part of the forest (e.g. in one workable block or compartment) each year rather than in the whole forest area. Activities should not be too costly for the community. Prior funding arrangements should be made if activities must be put in the plan that are beyond the means of the community to finance.
- Flexible: a management plan is a working document. Users will learn from experience what can or cannot be achieved. The users should be encouraged to adjust the plan according to these experiences (however, major changes should be approved by MINEF).
- Participatory: although the FMI executive and key community representatives initially prepare the management plan, other members of the community must have the opportunity to make comments and amendments during small group meetings and at enlarged community assemblies.

The approach described in this paper is a fully participatory approach, involving and working with the communities from the on-set. The process has been very long: from 1994, when work in community forest management started at Kilum-Ijim, to the first community forest legally acquired in 2001. Thus it can be said that the process of preparing a management plan is more important than the final written document. A management plan should not be prepared quickly just to fulfill a target. If the process is not carefully followed, the users will not understand the plan and will not be able to implement it.

The experience so far shows that in this participatory process the roles of the users and the field staff should be well understood at each stage. Users are ACTIVELY involved at all stages in the preparation.

The users should:

- describe their forest resources;
- state their objectives for each part of the forest;
- describe the operations they wish to carry out;
- set out time-tables for these operations;
- carry out forest management operations.

Field staff should:

- assist and facilitate in the process of plan preparation;
- provide any technical advice required by the users;
- arrange for the plan to be typed and copies distributed;
- assist the users in carry out management operations;
- monitor the implementation of the management plan.

4.2. Indigenous knowledge

Perhaps the biggest lesson learned in the community forest management process at Kilum-Ijim is the contribution that indigenous knowledge has made to the process. The one asset that makes it possible for the communities to fully participate in drawing up and implementing simple management plans is the enormous indigenous knowledge that they possess. As already explained, during the investigation phase, a wide range of PRA tools were used in the various communities to build up information on forest resources including history of use and availability of forest resources and rules governing resource use. It is only by incorporating this indigenous knowledge into the planning process that the communities themselves realize that they can do it. Drawing up and implementing a forest management plan becomes a normal process, rather than a complicated one. The blending of indigenous knowledge with modern scientific methods mould the communities into effective forest managers. Many scientists and practitioners are skeptical of this central role of indigenous knowledge but our experience so far points to the need to build more on it in most development efforts.

4.3. The role of viable partnerships in sustainable forest management

As stated above, the project is facilitating a three-way partnership between the communities, traditional authorities and Government. The communities (FMIs) are the primary managers while traditional authorities and Government are playing the various roles of co-ordination, conflict resolution, technical support and legislative support. This is a 'low risk' approach in that at any time that one partner is failing in its function there are high chances that the other two will sustain the process. It might even be possible for one partner to sustain the process when the other two are failing. In this way, there is time for all partners to be revitalized and resume their function while the forest is not destroyed.

Presently, new partnership arrangements are being made with MINEF support moving from the line services to the TOU. CAMCOF is being established to manage the trust fund that is being built up by a number of partners. Our experience with this new partnership is incomplete, as it has not yet been fully established. The concept has been positively received by the communities and all the other partners. More lessons will be learned as actions proceed.

4.4. Capacity building

A very important lesson learned in the course of facilitating the community forest management process at Kilum-Ijim is the effectiveness of capacity building through 'learning by doing'. While the project carried out a number of formal training programmes on various topics, the most effective channel for capacity building has been through convening the communities and other actors, planning and carrying out the various activities with them. At the end of the process the necessary skills are acquired. The communities have now gained a lot of confidence, not only in carrying out relatively complicated forest management activities, but in enforcement of forest use rules and also in approaching government authorities. The MINEF staff in the project area have also gained considerable skills through this approach.

The situation in the country as a whole is different. Devolving responsibility for forest management to local communities requires new skills and understanding at many levels. At the government level, 'letting go' of forest resources, relinquishing certain powers and taking a role as monitors and facilitators of a process that reduces their direct authority and (revenue-generating capacity) requires a radical reorientation of the Forestry Department's role (Thomas *et al.*, 2001). The field staff is also required to change their role from that of policing to that of enabling community participation in forest management. The law requires that MINEF staff give the communities 'free technical assistance'. The traditional forester is aware that the process of producing and implementing a forest management plan needs a lot of thought, even to the technically trained forester. How then, are communities (most of whom are illiterate) expected to go through such a process? It is clear that such a new approach poses a whole new challenge to the forester who is required to go through the process of forest management planning, not with his technical colleagues but with 'villagers' who have never received training in forestry. Thus, a lot of work is needed to embrace the new concepts and acquire new skills in participatory forest management.

4.5. Enforcement of rules

The enforcement of the forest-wide rules and other community-specific rules is paramount to the success of community forest management. Enforcement mechanisms have been set up by the FMI's themselves who handle and punish minor offences while passing more serious ones to the traditional authorities and/or government. While the FMIs and traditional authorities do succeed to a certain extent to enforce some of these rules, the role of MINEF and other appropriate government services remain very crucial. They have the final authority to punish the most recalcitrant offenders and those who are working against community interests.

The procedures manual attempts to set a mechanism for punishment of offences, separating minor from major offences in ways that almost march with the system being applied by the FMIs. The experience so far has been that MINEF staff are spread thin in the field and the communities have often failed to receive the necessary support from government services in enforcing conservation rules. This is leading to the weakening of some of the FMIs. There is an obvious gap in establishing an effective system for enforcement of the rules.

4.6. Benefit Sharing

As stated, except for water and *Prunus africana*, which are regarded as resources belonging to the whole community, most forest resources are harvested on an individual basis. Other sources of revenue for the community may be fees from tourists and researchers, fines from offenders and payments for felling of carving trees. Concrete benefits accruing to the whole community obviously provide incentives for full participation in forest management. Perhaps, the greatest challenge that the community forest management process is facing is that of developing income generation and benefit distribution mechanisms for the communities. The trade in *Prunus africana* bark within the country is chaotic, with a network of illegal exploiters who are well established throughout all the regions where the species occurs. MINEF has proven ineffective in controlling this activity. This makes organization by the communities to harvest and sell *Prunus bark* from their forests very difficult. There is an obvious gap here and in other income generating efforts. The project, MINEF staff and the communities are attempting ways of determining sustainable yield quotas, carrying out sustainable harvest and sale through proper legal channels. Skilled interventions are also needed to work on development of ecotourism for the benefit of the communities.

4.7. Constraints

In discussing some of the lessons learned above, some constraints have been brought out but it is worth summarizing the outstanding constraints, which are so far being faced in the community forest management process at Kilum-Ijim:

- Cost of producing and implementing forest management plans

The main costs include: demarcation of external and compartmental boundaries, taking GPS readings, production of community forest maps, drawing up the management plans, documenting the management plan, making contacts with the administration as well as implementation activities such as fire fighting, enrichment planting and harvesting. The costs of these activities are high in terms of material, human and financial means. While the communities (on a voluntary basis) do a lot of the work, they cannot afford the finances required for the more technical aspects. In a montane forest such as Kilum-Ijim where very little community revenue is generated, the situation is worse. Partnerships for permanent funding mechanisms are essential to sustain forest management.

- Shortage of skilled MINEF staff

There is an acute shortage of staff at the divisional delegations level as well as at the forestry and wildlife posts. Even where present, a good number of them lack the basic skills and training to implement the process. There is hardly any area in Cameroon where community forests have been established in the absence of internationally funded projects. International development organizations should work with MINEF to ensure permanent capacity within MINEF to implement community forest management.

- Conflicting interests

Perhaps the greatest constraint that cuts across most aspects of the CFM (Community forest management) process is conflict of interests. A central theme in the social learning process at Kilum-Ijim has been conflict management (Asanga, 2001). While the various partners are working to manage the forest for conservation and sustainable use, the interests of those whose concerns are immediate benefits cannot be met. Some key actors, like administrators (who are required by law to support the communities in their efforts), show no interest in community forest activities because they see no benefits for themselves. The elite and corrupt local officials have often supported destructive activities within the forest that yield short term benefits. A classic example of those who have continuously worked against the conservation of the Kilum-Ijim Forest is that of the illegal graziers. Government regulations (as well as the agreed forest-wide rules) forbid grazing within the forest, but the native graziers on the Kilum side as well as some Fulani graziers on the Ijim side have been consistently breaking the rules and destroying the forest with the tacit approval of some of those whose role it is to stop them. The communities are helpless as these people have the power to influence some authorities. An immediate solution has not been found to this problem apart from advocacy at higher levels of government to stamp out corrupt practices in the Kilum-Ijim area.

5. CONCLUSIONS

We have gained enormous experience at Kilum-Ijim, having implemented the community forest management process up to the level where eight communities are managing legally attributed community forests. The rest of the ten communities are at different levels in the process, most of them nearing completion. However, our experience is incomplete (as far as implementing forest management plans is concerned) as the eight communities have barely gone through one year of implementation and annual reporting. The communities have yet to go through a full five-year management cycle and then review their management plans. New partnerships with the FMIs, the ecological monitoring unit, the MINEF Technical Operational Unit and CAMCOF are just being established. However, the evidence so far indicates that the process is working and new partnerships will lead to a viable sustainable management system for the Kilum-Ijim Forest.

The project's realization that the community forest management process is a long one and its approach of developing conceptual and practical frameworks for carefully thought out phases in the process have been successful and may be applicable elsewhere. The participatory approach, involving the community in every stage of the process has led to practical simple management plans that are being implemented by the communities. The blending of the enormous indigenous knowledge in the community and modern scientific methods in drawing up and implementing forest management plans result in the communities themselves becoming effective forest managers.

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APPENDICES

Annex 1: progress of forest management institutions in the process of the legal attribution of community forests

Name of forest management institution	Number of villages	Information phase	Investigation phase	Investigation report presented	Forest user group or committee established	Membership campaign	Articles of association agreed	FMI legally recognized as CIG	Boundaries agreed and marked	Boundaries mapped	Consultation meeting	Application dossier submitted	Inventory complete	Management plan complete	Management agreement submitted	Management agreement is signed
Bihkov	4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Nchiiy	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Mbai	4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Emfvemii	4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Kedjem mawes	3	X	X	X	X	X	X	X	X	X	X	X	X			
Ijim	3	X	X	X	X	X	X	X	X	X	X	X				
Upper shinga	4	X	X	X	X	X	X	X	X	X	X	X	X	X		
Mbi	3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Juambum	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Laikom	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Ajung	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Yatimuvco	3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Mbesa	1	X	X	X	X	X	X	X	X	X	X					
Muteff	1	X	X	X	X	X	X	X	X	X	X	X	X			
Abuh	1	X	X	X	X	X	X	X	X	X	X	X	X			
Afua/djichami	1	X	X	X	X	X	X	X	X	X	X	X	X			
Anyafoma	5	X	X	X	X	X	X	X	X	X	X	X	X			
Akeh	1	X	X	X	X	X	X	X	X	X	X	X	X	X		

Annex 2: Kilum-Ijim Project – Community forest management, negotiation phase

Trial framework prepared on April 1998

NOTE: Throughout, all actions are proposals by the project to accomplish community forest management in the Kilum-Ijim area. There are other ways of accomplishing the same objectives and staff should always be open to the possibility of communities wanting to do things in different way.

CLUSTER A: CREATION OF LEGAL ENTITY FOR FOREST MANAGEMENT

1. Membership campaign (to ensure that the forest management institution is representative of the entire community, as required by law).
 - Project staff meet with FUG executive or management committee (hereafter referred to as “small group”) and community leaders to discuss proposals for membership campaign.
 - ** Provide membership forms
 - Door-to-door campaign with different members responsible for different constituencies; ensure that women are one constituency; particularly at Ijim, ensure that intensive users are one constituency.
 - Agree on deadline for implementation.
 - ** Develop checklist with small group about benefits and responsibilities of membership to be used by those carrying out the door-to-door campaign.
2. Benefits and distribution
 - Meet first with small group.
 - Develop list of forest resources (using results of investigation work and expanding if needed.
 - Only by one, decide whether each resources should provide an individual or community benefit, or combination of both; CFM team to facilitate process and point out various alternatives.
 - Identify other benefits (e.g. fines) and one by one, decide whether each is an individual or community benefit.
 - Small groups discuss and decide how community benefits to be distributed.
 - Small group present results to general meeting of larger group; discuss issues in smaller groups (e.g. constituencies) and then in larger group.
 - Small group amends description of benefits and distribution based on discussion.
3. Articles of association
 - Meet with small group and discuss why CIGs are being recommended as the appropriate form of association for community forest management institutions.
 - ** Discuss model articles of association with small group (note that in addition to the usual articles for a CIG, articles of association for a community forest management institution must include description of how benefits are to be distributed and must include a statement about members agreeing to abide by rules of the association).
 - Small group draft articles of association using model as a guide.
 - Bring to general membership in process as described above; amend draft articles as required.

- Organize constituent meeting (general meeting of all association members to formally create the association).
- Prepare application dossiers for constituting the CIG
- ** Project to prepare one-page summaries of required components of constituent meeting and application dossier.

4. Forest use objectives

- Determine at constituent meeting when general membership will be present.
- Use soft boarding technique (Anne to teach anybody unfamiliar with it).

5. Management Officer

- Elect officer at constituent meeting.
- Staff or small group representative to explain role of management officer and lead discussion on qualities needed of management officer.
- Staff to advice group to elect an assistant to act as management officer when first choice is not there.
- ** Project to prepare one-page summary of roles and responsibilities of management officer.

Throughout, administrative and traditional authorities should be informed of actions taken. MINEF representatives should be associated with process.

CLUSTER B: COMMUNITY FOREST BOUNDARY MARKING

1. Sensitization

Sensitization meetings with whole community to explain need for boundary (i.e. required to make a community forest), project to advise emphasis on need for management boundaries, not use boundaries.

2. With small group identify interested parties for each part of boundary.

3. Facilitate meetings of interested parties (two at a time) to agree boundary.

4. Mark boundary

- When entire boundary agreed, invite MINEF DD representative to mark boundary with paint.
- Ensure all interested parties present.
- Invite central traditional authorities if appropriate.
- Sign a document, which indicates agreement by all parties on location of paint; copy to each interest party.

5. Make map

- Train two people from each interested party on how to use GPS; note that these people should be ones who know the forest well.
- While marking boundary, record GPS readings, MINEF and project staff to assist as appropriate.
- Same group (2 from each community, project, MINEF) to prepare map using GPS readings.
- Present map to community (at general meeting) and neighbours.

6. Leadership walk

- Conduct walk with community leaders, and other interested people, around entire boundary.
Throughout, inform administrative and traditional authorities of actions taken.

CLUSTER C: APPLICATION PROCESS

1. Discuss application requirements with small group
** Project to prepare one-page summary of requirements.
2. Organize formal consultation meeting. Project should be prepared to provide fuel.
** Project to prepare one-page summary of requirements of consultation meeting.
3. Help group to prepare dossiers.
4. Introduce at least two people from group to DDEF.
5. DDEF and project to follow up dossiers above divisional level.

CLUSTER D: INVENTORY AND MANAGEMENT PLAN

1. Sensitization
 - Meet with whole community to discuss why a survey is necessary and how the survey is to be done.
2. Make compartments
 - With small group, use participatory mapping and results of previous investigation work to prepare map of compartments. Note that all resources should be referred to, not just vegetation.
 - Look at eco-monitoring map of vegetation for area.
 - Look at satellite photo of area.
 - Combine all three maps to decide on compartments for community forest; give a name and number to each compartment.
3. Inventory
 - With 10 people from community, visit each compartment to make a qualitative inventory of all resources in the compartment.
 - Mark internal compartment boundaries with paint and record with GPS (as for external boundaries).
 - Have available the eco-monitoring list of special sites (i.e. sites with rare/endorsed/etc plants).
 - Ensure that MINEF representative is present.
 - Ensure that eco-monitoring representative is present.
 - Use local and scientific names.
 - Where appropriate, go back to a particular compartment for a more quantitative survey; if needed, train community representatives in needed techniques.
 - Community representatives, project staff and MINEF to prepare survey report and then map. Map should be 1:200 000 to meet legal requirements, 1:50 000 or 1:20 000 to be of use to the community.

4. Community walk.

- Community walk to see internal boundaries. Ensure community leaders are present.

5. Management plan

This will consist of action at two levels: (a) overall level of whole forest and (b) community level.

Level of whole forest

- Work with forest management institutions, village TA's and central TA's to develop a central structure for co-ordination of rules and activities necessary at level of whole forest.
- ** Project to develop list of proposed rules absolutely necessary to safeguard conservation interests.
- ** Project to develop list of forest activities/resources for which forest-wide rules are necessary if rules are to be effective.
- ** Project to develop list of forest activities/resources for which rules can be developed at the community level.
- Meet with co-ordinating body to discuss three items above.
- Hold meeting/workshop to develop forest-wide rules.

Level of community forest

- With small group, compare resources present in each compartment with forest use objectives.
- If necessary, revise forest use objectives with general membership.
- MINEF or project staff present conservation objectives; compare resources present in each compartment with conservation objectives.
- Ensure consultation with eco-monitoring staff.
- Compartment by compartment, prepare management plan to meet forest use, objectives and conservation objectives, taking into account forest-wide rules developed above. Ensure MINEF and project staff are present with community.
- Bring draft management plan to general membership for adoption (discuss in small groups and then larger group as usual).

A and B. Rule preparation

- Whether at forest-wide or community level, use investigation work, expanding if necessary, to identify indigenous rules and decide which ones to incorporate into management plans.
- Identify responsibilities with respect to the various interested institutions and formulate as rules.
- For each rule, decide sanction if rule is broken; be specific about amount of fine or type of injunction or what is to be confiscated;
- ** Project staff to explain differences between major and minor breaches as per procedures manual.
- Clarify route for resolution of conflict; be specific about who can impose sanctions and where to go if sanctions are not respected.

6. Preparation of final dossier.

- Prepare final dossier and submit.
- ** Project to prepare one-page summary of requirements of final dossier.
- When accepted, have a party.

Annex 3: agreed forest-wide rules for the Fondoms of Kom, Oku and Nso for the Kilum-Ijim forest (held at Oku from 01/06/1999 to 03/03/1999)

1. No fire.
2. Fire tracing should be done every October and when deemed necessary by the community. Fire tracing (band) should be at least 3 meters but can be above depending on the vegetation and activity around the area.
3. All fires around the forest should be under control.
4. No farming of any sort should be carried out in the forest.
5. No hunting or trapping except the traditional hunt that employs the use of local (traditional) implements e.g. spears, cutlasses, sticks, ropes and not synthetic. No hunting of chimpanzees, baboons, duikers and monkeys. There should be no hunting of birds, collection of eggs and nests.
6. There should be no destruction of boundary marks like boards, trees, signboards, streams etc.
7. No stealing in the forest.
8. No destruction nor removal of endemic, scarce and newly discovered species (endemic, found only in Kilum-Ijim Forest).
9. No introduction of foreign species (stranger) e.g. Kola nuts, pears, cypress, mangoes, eucalyptus, fish, etc.
10. No harvesting of wild honey if it could cause destruction to the forest.
11. Fires for honey harvesting may be used only in the rainy season but smokers should be used all the time.
12. No excavation of stones, sand and gravel in the forest. No new roads.
13. Only resting huts are built in the forest by forest users and the dimension must be 2 m x 3 m maximum and 1 m for the surrounding is allowed.
14. All swamps must be protected.
15. No permanent deviation of water courses except for community purpose e.g. building of water catchment.
16. Only mature or dry Indian bamboos should be cut. In case of need for the use of fresh young bamboos, the community must be consulted.
17. Only naturally dry wood may be harvested for firewood and no large scale commercial harvesting is allowed. Small scale head load harvesting is allowed.

18. No felling of live trees for plank, xylophone or artistic work except when authorized by the community. Apply through the community to MINEF. The price to be paid to the community for the tree will be negotiated at the community level with advice from MINEF.
19. The following tree species shall be protected: *Podocarpus*, *Carapa*, *Prunus*, *Scheffleria* spp.
20. Only mature *Prunus* barks may be harvested for commercial purposes following MINEF's technical advice.
21. No harvesting of *Polyscias* until after five years.
22. Only branches of mature or dry trees should be harvested for tool handles.
23. No cutting or exploitation of forest for fences. However, fig trees can be planted for live fencing.
24. Only branches of *Gnidia glauca* (Ling, Ding) shall be harvested as ropes for any purpose.
25. The collection of wildings should be done with supervision from the community.
26. Medicinal plants harvesting:
 - a. Herbs – No uprooting or complete stripping of leaves.
 - b. Barks – harvest only small quantities from opposite sides.
 - c. Roots – harvest only a few of the secondary roots and backfill after harvesting.
 - d. Leaves/fruits – harvest only from mature trees and do not fell the tree for this purpose.

All harvesting should be done under supervision.
27. Regeneration should be encouraged throughout the forest.
28. All community forests shall have at least one area where all exploitation is forbidden. Beekeeping is allowed and only smokers are allowed to be used for harvesting.
29. No grazing of domestic animals in the forest, however, the areas to be demarcated around the permanent Mbororo settlements in Ijim are not considered as part of the forest. No new cattle shall be introduced into the permanent enclaves.
30. Visitors to the forest:

Categories	Tourists	Researchers
Cameroonians	500 FCFA per day	Free
Africans	5 000 FCFA per day	25 000 FCFA per day 1 000 FCA each day following
Others	10 000 FCFA per day 2 000 FCFA each day following	50 000 FCFA for groups for a specific research topic with copy of results available to the community.
School children	Free	Free

Guides – A fee of 2 000 FCFA per day to be paid to the guide by the visitors. Each Forest Management Institution shall select at least five guides.

C. Tourist money for each Fondom shall remain in that Fondom. Money shall only be collected at point of entry and receipt presented whenever needed.

31. The entire community shall be involved in forest management.

32. Each community may add its own internal wide rules to these rules as long as they conform to these rules.

SIGNATURES:

Rapporteurs: Hon. FAI MBUH YANG DANIEL (OKU)
CHARLES LWANGA WIRSIY (NSO)
BUNDA BERNARD ANKAIN (KOM)

HRH THE FON OF KOM HRH THE FON OF OKU HRH THE FON OF NSO

THE DIVISIONAL DELEGATE OF
THE ENVIRONMENT AND FORESTRY,
BUI

THE DIVISIONAL DELEGATE OF THE
ENVIRONMENT AND FORESTRY, BOYO

Annex 4: the Bihkov Community

Description

Name of the community/Legal entity: Bihkov forest management institution

Common Initiative group (BIFOMACIG)

Date the Community/Legal entity was established: 25/03/1999

Names of the villages in, which the Community/Legal entity is, located: Vekovi, Wvem, Kai and Ntur.

Location of the Community:

- Province: North West
- Division: Bui
- Subdivision: Jakiri

Names of the management officer appointed by the Community: Seka Nemesius Tangwa

Profession of the management officer appointed by the Community: teaching

Address of the management officer appointed by the Community: Wvem Jakiri c/o P.O. Box 35 Jakiri, Bui Division, N.W.P.

Means of contacting the management officer appointed by the Community: by post.

Location of the Community forest and priority uses

Administrative location

Province: North West

Division: Bui

Subdivision: Jakiri

Brief history and previous use of the Bihkov community forest

The Ngongbaa section of the Kilum Mountain Forest which Bihkov Forest Management Institution C.I.G is applying for as a community forest had for long been very vital to these village communities that surround this area of the forest.

The forest was used mostly by men (forest users) who would leave the village and spend some days in the forest carrying out the following activities:

- The keeping of bee hives for honey.
- Trapping rats and small mammals for consumption and for sale.
- The royal hunt.
- Collection of fuel wood for their homes and to pay tribute to His Royal Highness the Fon of Nso.
- The forest also served as a hiding place in times of war.

The forest was managed indigenously by the village communities under the banner of the manjong (the men's society). Landlords performed traditional rites to ensure the health of the forest. Honey tributes were given to the Fon who was custodian of the forest alongside Nwerong considered the overseer meanwhile landlords received rat intestines and rat parcels from rat trappers after their traditional rites. Fire fighting if any occurred was fought by the manjong supervised by the Nwerong while culprits were punished by the village council or at the palace by the Fon or Nwerong.

Forest users practiced overlap use systems and from this they saw the need to be coming together to discuss and solve their problems that led to the creation of the BIHKOV Forest Users Group by the late eighties.

Meanwhile during the late seventies, the rise of the population, the fall of the prices of cash crops and famine caused the people to burn parts of the forest for farmland. This situation was saved by the coming of the Project in 1987. The establishment of the forest/farm land and grazing land boundaries and the prefectorial order of 1993 prohibiting farming and grazing and cutting of live trees in the forest thus conserving the part that is still existing now.

With the introduction of the New Forestry Law and the information from the Kilum/Ijim Forest Project communities then embraced community forestry in preference to the forest gazettement as a reserve.

In 1998, the Divisional Officer of Jakiri, in a community meeting held at Vekovi launched the community forestry negotiation process. Bihkov has since made the following achievements:

1. Acquired legal status described as Bihkov Forest Management Common Initiative Group (BIFOMACIG).
2. Marked their forest management boundaries and the map drawn for the proposed community forest.
3. Held a consultation meeting and elected the forest management officer.
4. Done an inventory and compartment marking of the forest concerned.

Meanwhile, the following activities are done on a regular basis to ensure sustainability of the forest and the management institution:

- a. Fire tracing at least twice every year.
- b. Monthly patrol of the forest boundary line.
- c. Regular contact with MINEF and administration.
- d. Following up of defaulters' case at the village council and the palace.

Compartment description of the Bihkov forest

Compartment description form

Compartment N°	Area (ha)	Plant resources	TOPOGRAPHY
1	168	<i>Podocarpus latifolius, Prunus africana, Syzygium guineense, Rapanea melanophloeoes, Nuxia congesta, alpine bamboo, Gnidia glauca, Hypericum spp. and Adenocarpus mannii</i>	Compartment is located on a gentle slope on a mountain top and surrounded by the rocky melen grassland south and west of the compartment. The compartment has two seasonal streams.
2	28	Mature <i>Prunus africana, Hypericum spp., Adenocarpus mannii, Gnidia glauca, Schefflera spp. and Podocarpus latifolius</i>	It is bounded by the Vikuubamkov and a rocky ridge to the south. It stretches up to a steep slope northwards to the hill top where river Kelendzev takes its rise.
3	79	<i>Gnidia glauca, Hypericum</i> (most dominant), <i>Adenocarpus</i> and <i>Rapanea</i>	Gentle sloping in some areas but most steep in others. Extensive rocks and the presence of river Kelendzev.
4	35	<i>Gnidia glauca, Podocarpus latifolius, Prunus africana, Hypericum spp., Pittosporum mannii, Syzygium staudii, Philipia mannii</i>	Level land on the plateau, rocky towards Kitolong stream, gentle rocky slope in some areas with skeletal poor soils, and the presence of a cave.
5	99	<i>Schefflera abyssinica, Gnidia glauca, Nuxia congesta, Sporobolus africana, Croton macrostachyst, Prunus africana, Podocarpus latifolius and Commolina cameroonenses, Albizia gummifera, Pittosporum mannii</i>	Made up of extensive areas of bare rocks with few grassland patches towards the Melen compartment and large areas of steep and gentle slopes, which support very healthy vegetation.
6	220	<i>Nuxia congesta, Prunus africana, Schefflera abyssinica, Polyscias fulva, Carapa grandiflora and Gnidia glauca</i>	This is the steepest rocky hill with difficult terrain in the whole of Bihkov forest. It is located in a deep valley and there is the presence of caves extensive rocks, cliffs and seasonal streams.
7	185	<i>Syzygium staudii, Nuxia congesta, Gnidia glauca, Schefflera spp., Prunus africana, Rapanea melanophloeoes, Podocarpus latifolius, Polyscias fulva, Carapa grandiflora</i>	Gentle sloping and rocky at the edges and the presence of streams.
8	169	<i>Schefflera spp., Croton macrostachyst, Prunus africana, Gnidia glauca, Rapanea melanophloeoes, Syzygium staudii, Albizia gummifera and Sporobolus spp.</i>	Made up of very steep slopes and gentle slopes. Some areas are undulating while very few are almost covered with few grass species and spotted all over, presence of caves, cliffs and seasonal streams.
9	222	<i>Gnidia glauca, Schefflera spp., Nuxia congesta, Carapa grandiflora, Hypericum spp., Rapanea Melanophloeoes, Albizia gummifera, Prunus africana, Syzygium staudii, Podocarpus latifolius</i>	It consists of gentle slopes with rocky areas and which support thick forest vegetation. There are some seasonal streams that get dry during the rainy season.
10	253	<i>Podocarpus latifolius, Prunus africana, Syzygium staudii, Nuxia congesta, Rapanea melanophloeoes, Schefflera spp., Arundinaria alpina, Maesa lanceolata, Philipia mannii, Crassicephalum mannii</i>	The area is divided into strata that run from the summit down into distinct gentle sloping plains with rolling valleys. There is the presence of a historic cave (mboh mbve) a waterfall and a series of deep valleys and cliffs along the Kilendzev river course.
11	226	<i>Cyperus tomaiohyllus, Impatiens spp., Gnidia glauca, Arundinaria alpina</i>	The compartment is covered by steep slopes along the Kilendzev valley and gentle sloping valleys which run into a distinct elevated area which is also slightly sloping to the river course distinct cliffs, two healthy eucalyptus wood lots, two waterfalls along the Kilendzev river course. There is also a distinct patch of bamboo forest.
12	248	<i>Maesa lanceolata, Zanthoxylum rubescens, Croton macrostachyst, Albizia gummifera.</i>	Presence of steep slopes running into Kirumen Hill which is a highly elevated of the compartment. Two major cliffs exist to the west of the compartment.

Wildlife record of the Bihkov forest

Form – Wildlife resources

SN	NSO Name	Scientific name	Number	Location - comments
1	Lum	<i>Cricetomys emini</i>	Many	All compartments but significant in compartment 1 and 6.
2	Fegvek	<i>Pipistrellus</i> spp.	Few	All compartments
3	Mbuy	<i>Papio anubis</i>	Few	All compartments
4	Kai	<i>Lamnicomys mittendort</i>	Few	All compartments
5	Tuh	<i>Dasymys rufulus</i>	Many	All compartments
6	Ketantie	<i>Chrysochlaris baleaci</i>	Few	All compartments but rare to find.
7	Kan	<i>Cercopithecus aethiops</i>	Very few	All compartments but very few.
8	Fekantieh	<i>Perodicticus potto</i>	Rare	All compartments
9	Shingol	<i>Aethosciurus cooperi</i>	Many	All compartments
10	Shishuy	<i>Cephalophus dorsalis</i>	Very rare	All compartments
11	Djel	<i>Otomys irroratus burtoni</i>	Many	All compartments
12	Dian	<i>Grammonys</i> spp.	Few	All compartments but very few.
13	Keleen		Few	All compartments
14	Kuf	<i>Procavia ruficeps B.</i>	Few	All compartments
15	Waangaa	<i>Lepus saxatilis</i>	Few	All compartments
16	Mbai	<i>Nandinia binotata</i>	Few	All compartments
17	Mbo	<i>Thryonomys swinckrinus</i>	Few	All compartments
18	Fen	<i>Bannerman turaco</i>	Few	All compartments
19	Lum	<i>Cricetomys gambianus</i>	Few	All compartments
20	Mabi	<i>Nanclimia binotata</i>	Few	All compartments
21	Shingol	<i>Aethosciurus cooper</i>	Few	All compartments
22	Djel	<i>Notomys irrocatu butani</i>	Few	All compartments
23	Nkai	<i>Lemniscomittenclofi</i>	Few	All compartments
24	Mbafnsai	<i>Chrysochlaris balsaci</i>	Few	All compartments
25	Yioh		Few	All compartments
26	Kingaikeshne	<i>Genetta</i> spp.	Few	All compartments
27	Kishio	<i>Viverra civetta</i>	Very few	All compartments
28	Shua		Few	All compartments
29	Shikfuna bebe	<i>Tadarida ansorgei</i>	Few	All compartments
30	Kindzem		Few	All compartments

Community forest use

Form – Compartment use

Compartment N°	Area (ha)	Main use(s)	Resources	Secondary use(s)
1	168	Beekeeping, firewood collection, <i>Prunus</i> bark harvesting, collection of alpine bamboo, medicinal plant collection, rat trapping and watershed.	Both plants and animal resources are present (see form compartment description and wildlife resources for compartment).	See main uses for compartment 1.
2	28	Beekeeping, rat trapping, harvesting of medicinal plants, watershed, <i>Prunus</i> bark harvesting.	See form compartment description and form wildlife resources for compartment 2.	See main uses for compartment 2.
3	79	Rat trapping, beekeeping and bamboo collection.	See compartment description form and form wildlife resources for compartment 3.	See main uses for compartment 3.
4	35	Beekeeping, rat trapping, medicinal plant collection.	See compartment description form and form wildlife resources for compartment 4.	See main uses for compartment 4.
5	99	Beekeeping, rat trapping, firewood collection, medicinal plant collection.	See form compartment description and form wildlife resources for compartment 5.	See main used for compartment 5.
6	220	Beekeeping, Timber collection, cutting of grass for roofing, harvesting of medicinal plants.	See form compartment description and form wildlife resources for compartment 6.	See main uses for compartment 6.
7	185	Rap trapping, beekeeping, fire wood collection, medicinal plant collection.	See form compartment description and form wildlife resources for compartment 7.	See main uses for compartment 7.
8	169	Fuelwood collection, beekeeping, rat trapping, <i>Prunus</i> bark harvesting and collection of medicinal plants.	See form compartment description and form wildlife resources for compartment 8.	See main uses for compartment 8.
9	222	Beekeeping, fire wood collection, tool handles, roofing grass.	See form compartment description and form wildlife resources for compartment 9.	See main uses for compartment 9.
10	253	Rat trapping, beekeeping, medicinal plant collection and <i>Prunus</i> bark harvesting.	See form compartment description and form wildlife resources for compartment 10.	See main uses for compartment 10
11	226	Rat trapping, beekeeping.	See form compartment description and form wildlife resources for compartment 11.	See main uses for compartment 11.
12	248	Beekeeping, rat trapping, medicinal plants collection, multiple use.	See form compartment description and wildlife resources for compartment 12.	See main uses for compartment 12.

Compartment five year action programme and detail plan of operations for the first year

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Five year programme: Compartment 1 (Vikuubam, area 168 ha uses) – Period 2001-2005

Year 1 (2001)	Year 2 (2002)	Year 3 (2003)	Year 4 (2004)	YEAR 5 (2005)
Fire prevention (Back burning of Melen).	Fire prevention (back burning of Melen).	Fire prevention (Back burning of Melen).	Fires prevention (back burning of Melen0.	Fire prevention (back burning of melen).
Make nursery.	Nursery work.	Nursery work	Nursery work.	Nursery work.
Patrolling to check destructive activities.	Patrolling to check destructive activities.	Patrolling to check destructive activities.	Patrolling to check destructive activities.	Patrolling to check destructive activities.
Monitoring volume and quality of streams.	Monitoring volume and quality of streams.	Monitoring volume and quality of streams.	Monitoring volume and quality of streams.	Monitoring volume and quality of streams.
<i>Prunus</i> inventory.	Fulfil legal requirements as provided for by law.	Follow up legal procedures and train personnel for harvesting/start harvesting,	<i>Prunus</i> bark harvesting.	

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Annual plan of operation(s) (Compartment) 2001

Forest name: Bihkov Forest N° Compartment N°1 Compartment area: 168 ha Use(s):

Operation/activity	Details - Location	Details – persons responsible	J	F	M	A	M	J	J	A	S	O	N	D
Fire prevention (back burning)	Melen	FUG president/vice president, Vekovi messenger contact manjong houses.											X	
Patrolling to check destructive activities.	Whole compartment	See attached list of patrollers.	X	X	X	X	X	X	X	X	X	X	X	X
Measure depth of river Kitolong	Valley above Kitolong compartment point 4 d.	Shey Vitalis		X										
<i>Prunus</i> inventory – split compartment 1 into	Whole compartment.	FUG president, Vekovi FMO, Bihkov FUG Vekovi.		X										
Sub compartments – group those responsible for each sub compartment.	Whole compartment		X											
Catchment protection (stop cutting any trees along streams (river Kitolong) 50 m on both sides.	50m on both sides along river course.	Patrollers	X											

Compartment 1 Vikuubam

Uses

- Beekeeping
- Firewood fetching (far)
- *Prunus* bark exploitation
- Collection of bamboo
- Harvesting of medicinal plants
- Rat trapping
- Watershed

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Principal objectives

- Beekeeping/rat trapping
 - Watershed
 - *Prunus* exploitation
 - Harvesting of medicinal plants
- * Principal objective
 - Beekeeping
 - Water

Names of patrollers for compartment 1

- Amesus Lukong
- Vitalis Yuyar (assistant leader)
- Temkong Ngeh
- Nyamyeh ngum
- Napoleon Konyuy
- Tavnjong Gilbert

Note: Rainy season: May, June, July, August, September, October. Dry season: November, December, January, February, March, and April. Four times a month in the rainy season and daily in the dry season. Each patroller patrols once each week throughout dry season.

Annex 5: project proposal for forest health indicators and methods of measurement

(Two examples)

1. Indicator: number of streams flowing in dry season

Depth of those streams.

Method: Make a list of all streams flowing at the end of January. Count the number of streams on the list. Choose a single point in each stream (preferably a rocky place) and mark the point (tree, rock, etc.), with paint. Use a plastic meter stick to measure the depth of each stream. Record the information in the monitoring notebook as follows.

Depths of streams flowing at the end of January

Years	2000	2001	2002	2003
Stream A	10	55 cm	45 cm	...
Stream B	6	12 cm	11 cm	...
...				
Total number of streams				

2. Indicator: number of animal sightings

Method: Choose two members of the FMI to be responsible for recording the animals that they sight. They should be hunters or other users who are in the forest regularly and frequently. Give each a checklist of animals in local names as follows:

Checklist of animals

	Jan	Feb	Mar	Jun	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Animal A												
Animal B												
Animal C												
...												

The recorders should put a tick mark in the appropriate place every time they see an animal in their forest. The totals should be counted quarterly and recorded in the monitoring notebook as follows:

Number of animal sightings

	Year 2000			
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
Animal A				
Animal B				
Animal C				
...				